

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 1. (Currently Amended) A method for increasing print job throughput in printer
2 spooling arrangements, comprising:

3 receiving a print job having associated print data;

4 writing print data associated with the print job to a storage device;

5 monitoring the storage device to determine when print data associated with
6 the print job becomes available on the storage device;

7 reading the print data associated with the print job from the storage device
8 upon determining at least a portion of print data associated with the print job on the storage
9 device is available for printing, while concurrently writing print data associated with the print
10 job to the storage device;

11 suspending reading print data associated with the print job from the storage
12 device upon detecting a predetermined condition associated with print data associated with
13 the print job;

14 ~~reading print data associated with the print job from the storage device~~
15 ~~concurrently with the writing of print data associated with the print job to the storage device;~~

16 and

17 printing the print data associated with the print job that is read from the
18 storage device concurrently while print data associated with the print job is being written to
19 the storage device.

1 2. (Canceled)

1 3. (Currently Amended) The method of Claim [[2]] 1, further comprising
2 generating a message indicating that the print job is pending.

1 4. (Original) The method of Claim 3, further comprising initiating the
2 reading of the print data from the storage device in response to recognition of the message.

1 5. (Currently Amended) The method of Claim [[2]] 1, further comprising:
2 maintaining status attributes to identify a data file for the print job that has
3 been created on the storage device to spool the print data, and to identify when at least a
4 portion of the print data associated with the print job becomes available on the storage
5 device.

1 6. (Canceled)

1 7. (Currently Amended) The method of Claim 1, wherein the suspending
2 reading of the print data associated with the print job further comprising suspending reading
3 of the print data associated with the print job if the quantity of the print data written to the
4 storage device is less than a predetermined number of bytes.

1 8. (Currently Amended) The method of Claim 1, wherein the suspending
2 reading of the print data associated with the print job further comprising suspending reading
3 of the print data associated with the print job when all of the print data written to the storage
4 device has been read from the storage device but before the print data has been written to the
5 storage device in its entirety.

1 9. (Original) The method of Claim 8, further comprising generating an end
2 of job indication when the print data has been written to the storage device in its entirety.

1 10. (Original) The method of Claim 8, further comprising resuming reading
2 of the print data when additional print data has been written to the storage device.

1 11. (Currently Amended) The method of Claim 1, further comprising reading the
2 print data for printing from the storage device only after the writing of the print data has
3 completed, if the print data is associated with predetermined one or more file types.

1 12. (Original) The method of Claim 11, wherein the predetermined file types
2 includes a PDF file type.

1 13. (Original) The method of Claim 1, further comprising reading a number
2 of bytes of the print data from the storage device that is above a number of bytes of the print
3 data that has been written to the storage device.

1 14. (Currently Amended) The method of Claim 1, further comprising updating
2 despool availability status to identify the print data as available for reading for printing from
3 the storage device upon creation of a data file on the storage device to which the print data is
4 directed.

1 15. (Currently Amended) The method of Claim 14, wherein the monitoring
2 further comprises ~~comprising~~ monitoring the despool availability status to determine when to
3 initiate the reading of the print data from the storage device.

1 16. (Original) The method of Claim 15, wherein monitoring the despool
2 availability status comprises monitoring the despool availability status using a back-end
3 despooling daemon.

1 17. (Original) The method of Claim 14, wherein updating the despool
2 availability status comprises updating the despool availability status using a front-end
3 spooling daemon.

1 18. (Currently Amended) A printing device for processing print job requests,
2 comprising:
3 at least one input channel to receive the print job requests;
4 a storage medium to store print data associated with the print job requests;
5 a spooling module coupled to receive the print job requests and associated
6 print data, and to write print data associated with a print job request to the storage medium;
7 a despooling module for monitoring the storage device to determine when
8 print data associated with the print job becomes available on the storage device and for
9 receiving coupled to receive notification of an availability of the print data associated with
10 a print job request on the storage medium, and to read print data associated with the print job
11 from the storage device upon determining at least a portion of print data associated with the
12 print job on the storage device is available for printing, while concurrently writing print data
13 associated with the print job to the storage device to concurrently read a first portion of the
14 print data associated with a print job request from the storage medium as a second portion of
15 the print data associated with a print job request is written to the storage medium, the
16 despooling module further suspending reading print data associated with the print job from
17 the storage device upon detecting a predetermined condition associated with print data
18 associated with the print job; and
19 a print engine to print the print data associated with a print job request that is
20 read from the storage medium concurrently while print data associated with the print job is
21 being written to the storage device.

1 19. (Original) The printing device of Claim 18, further comprising a job
2 monitor module to maintain spooling status including an active spool indication to indicate
3 that the print data is being written to the storage medium.

1 20. (Original) The printing device of Claim 18, further comprising a job
2 monitor module to maintain spooling status including a write count indication to indicate a
3 number of bytes of the print data that has been written to the storage medium.

1 21. (Original) The printing device of Claim 18, wherein the despooling
2 module comprises means for reading the first portion of the print data that does not exceed
3 the write count indication.

1 22. (Original) The printing device of Claim 18, wherein the storage medium
2 is a hard disk.

1 23. (Original) The printing device of Claim 22, wherein the hard disk is
2 formatted with a spooler directory to reserve storage for the print data associated with the
3 print job requests.

1 24. (Original) The printing device of Claim 22, wherein the hard disk is
2 resident on the printing device.

1 25. (Currently Amended) A print server system for processing print jobs,
2 comprising:
3 one or more client systems arranged in a network to generate print jobs
4 identifying print data for printing;
5 transmission media coupled to receive the print jobs and to transfer the print
6 jobs initiated on the network;
7 a printing device coupled to the network via the transmission media to receive
8 and process the print jobs, the printing device comprising:
9 a storage medium to store print data associated with the print jobs;
10 a spooling module coupled to receive the print job requests and
11 associated print data, and to write the print data associated with a print job request to the
12 storage medium;
13 a despooling module for monitoring the storage device to determine
14 when print data associated with the print job becomes available on the storage device and for
15 receiving coupled to receive notification of an availability of the print data associated with
16 a print job request on the storage medium, and to read print data associated with the print job
17 from the storage device upon determining at least a portion of print data associated with the
18 print job on the storage device is available for printing, while concurrently writing print data
19 associated with the print job to the storage device to concurrently read a first portion of the
20 print data associated with a print job request from the storage medium as a second portion of
21 the print data associated with a print job request is written to the storage medium, the
22 despooling module further suspending reading print data associated with the print job from

23 the storage device upon detecting a predetermined condition associated with print data
24 associated with the print job; and
25 a print engine to print the print data associated with a print job request
26 that is read from the storage medium concurrently while print data associated with the print
27 job is being written to the storage device.

1 26. (Original) The print server system of Claim 25, wherein the printing
2 device comprises at least one input channel to receive the print job requests.

1 27. (Original) The print server system of Claim 25, wherein the printing
2 device further comprises a job monitor module to maintain spooling status including an
3 active spool indication to indicate that the print data is being written to the storage medium.

1 28. (Original) The print server system of Claim 25, wherein the printing
2 device further comprises a job monitor module to maintain spooling status including a write
3 count indication to indicate a number of bytes of the print data that has been written to the
4 storage medium.

1 29. (Original) The print server system of Claim 25, wherein the despooling
2 module comprises means for reading the first portion of the print data that does not exceed
3 the write count indication.

1 30. (Currently Amended) A computer-readable program storage medium tangibly
2 embodying a program of instructions executable by a printer system to process print jobs by
3 performing steps comprising:

4 receiving a print job having associated print data;

5 writing print data associated with the print job to a storage device;

6 monitoring the storage device to determine when print data associated with
7 the print job becomes available on the storage device;

8 reading print data associated with the print job from the storage device upon
9 determining at least a portion of print data associated with the print job on the storage device
10 is available for printing, while concurrently writing print data associated with the print job to
11 the storage device;

12 suspending reading print data associated with the print job from the storage
13 device upon detecting a predetermined condition associated with print data associated with
14 the print job;

15 ~~reading print data associated with the print job from the storage device~~
16 ~~concurrently with the writing of print data associated with the print job to the storage device;~~
17 and

18 printing the print data associated with the print job that is read from the
19 storage device concurrently while print data associated with the print job is being written to
20 the storage device.

1 31. (Currently Amended) A method for concurrently spooling and despooling a
2 print job to and from a storage device to increase printer throughput, comprising:
3 creating a file on a storage device in which to store the print job;
4 writing print data associated with the print job to the storage device;
5 maintaining a status indicator on a panel indicating whether the print data is
6 currently being written to the storage device;
7 monitoring the status indicator to determine if the print job is currently being
8 written to the storage medium;
9 reading print data associated with the print job from the storage device upon
10 determining at least a portion of print data associated with the print job on the storage device
11 is available for printing, while concurrently writing print data associated with the print job to
12 the storage device;
13 suspending reading print data associated with the print job from the storage
14 device upon detecting a predetermined condition associated with print data associated with
15 the print job;
16 ~~retrieving the print data associated with the print job from the storage medium~~
17 ~~concurrently with the writing of the print data to the storage medium, wherein the print data~~
18 ~~retrieved is the portion of the print data associated with the print job that has been written to~~
19 ~~the storage device; and~~
20 sending to the printing device for printing the print data associated with the
21 print job that is read concurrently while print data associated with the print job is being
22 written to the storage medium.